

THE CHLOROPHYLL BODIES OF CHARA CORONATA.

W. W. ROWLEE, Ithaca, N. Y.

No group of plants affords a better opportunity for studying the contents of vegetable cells than the *Characeæ*. Of the two principal genera in the group, *Nitella* is most often recommended for histological studies. *Chara coronata*, however, is without the cortical cells which interfere so seriously with observation of cell-contents in other species of *Chara*. As this particular species is more abundant in the vicinity of Ithaca than any species of *Nitella*, it has been selected more often as a subject for laboratory investigation in vegetable histology, and one of the interesting observations made in connection with these studies has reference to the number of chlorophyll bodies in a given area.

The plant body is made up of successive joints. At the joints are lateral outgrowths frequently called "leaves." The plant simulates an ordinary terrestrial herb in having nodes and internodes and in having leaves borne at the nodes. Each internode consists of a single, large cylindrical cell. In the lower portion of the axis the internodal cells are sometimes more than an inch long and they grow successively shorter toward the apex. The nodes consist of several cells. The internodal cells are lined with an ectoplasm in which is imbedded the chloroplastids, to which, as is well known, is due the green of plants.

The chlorophyll bodies lie in longitudinal rows and very close together, but never so close as to overlap. The rows lie obliquely in the cell, thereby giving the impression of being in a spiral. The number of chlorophyll bodies in a given area is something surprising. They are larger and fewer in the older parts of the plant axis, and in these parts number from 12,000 to 15,000 to the square millimeter. In the younger portions of

the axis and in the leaves their number rises to from 25,000 to 30,000 in each square millimeter, a number which may possibly be more easily comprehended when we reduce this to inches, and find that there are more than a million of these bodies to each square inch of surface.

It is interesting to note that, just as in terrestrial plants, the chlorophyll is more abundant in the lateral organs.